iVention
Lab Automation

Radboud**umc**

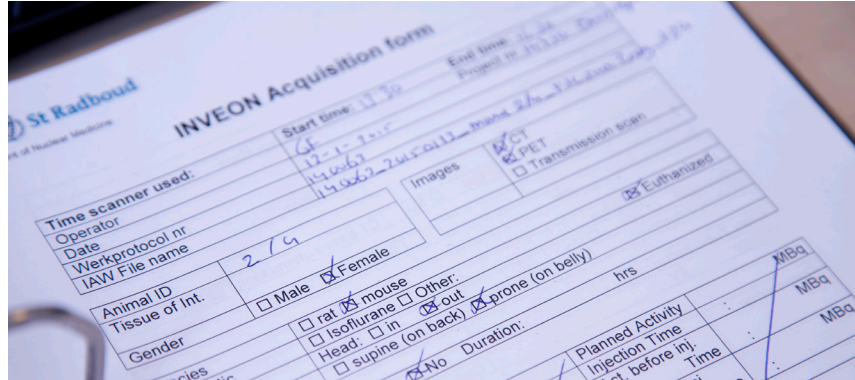# CDL: from paper to digital workflow

Case Study

ivention.nl

Implementing iVention's Laboratory Execution System will allow Radboud University Medical Center's Central Animal Lab (Centraal Dierenlaboratorium; CDL) to replace pen and paper with a digital environment that supports the lab's medical research.

The system is being implemented in a strictly regulated and protocolized environment. The university's 700 users of animal testing facilities will be given access rights. Apart from the 52-head CDL staff, most users are researchers at Nijmegen's Radboud University and University Medical Center. iVention LES's web-based architecture makes the system accessible from wherever authorized users happen to be working.

Flexibility

When Kees Hagenaar became manager at CDL in 2008, all data were recorded in Word documents or files in Excel or Access. "The primary process was fragmented and most data was recorded on paper," Hagenaar said. "It felt like a time warp that took me back 20 years. I wanted to automate the workflow, but first we had to organize and standardize the work processes." By mid 2012, CDL was ready to make the big move. The lab asked an external consultant with deep knowledge of the animal testing world to find out which software packages were suitable. From 35 available options, the lab narrowed the selection down to shortlists: first five, then three. "None of the packages offered the flexibility we were looking for, except iVention LES," Hagenaar recalled. "Initially I insisted on choosing one of the proven systems out there, but I soon realized that in most of these our input, throughput and output model got completely lost. Those systems would automate particular components, but we wanted to tackle the whole process. iVention was the only one flexible enough to automate the entire workflow, including

Radboudumc

'A one-touch operation to enter a protocol'

'The configuration is really user-based'

Kees Hagenaar

research, management and finances. And it was web-based, a claim few others systems could make. Many suppliers have failed to keep up with the times. We needed a system that could be hosted externally so all users could access it from anywhere."

Logic

Animal testing is known for its strict regulations and protocols. Even after licenses have been approved and testing has begun, the facility has to be able to prove full compliance at all times. Monitoring is key. "Animal testing facilities are under a microscope," said Hagenaar. "Don't forget that anything we do here is eventually going to be made public. We're answerable to a supervisory authority. If you're audited, you want to be able to hand over a dossier that clearly proves each and every subproject you're working on is compliant with all legal regulations. The number of animals that can be used for testing is strictly regulated. I'd like to have a one-touch operation to enter a protocol and start collecting data to meet regulatory requirements. That's one of the benefits of automation. It's not so easy, because it has to be logical too. But iVention can handle that."

Daily Charts

iLES offers the option of viewing interim results during testing. Hagenaar explained why this is important for researchers: "They need to be able to link data from the facility management system—such as light, humidity and temperature—to their test animals' physical condition. If animals die, you need to know whether that has to do with changes in environmental conditions. If tumor growth has been recorded, you want to be able to see daily charts, even in randomized blind trials. Although we haven't tried to take this step yet, these are things we think we can achieve using this software system."

User-based

CDL now runs the basic functionality of input and throughput in iVention LES. Over the course of 2015, paper will gradually be replaced by a digital workflow, central data storage and a search engine. CDL wants to use iVention LES for entering the tests based on the full protocols. Researchers could then fill those out online. The system's flexible forms make data registration and exchange much easier. In addition, the LES can also handle (animal) ordering, stock replenishment and invoicing processes. The system can also generate all reports

Web-based and Safe

The fact that iLES is 100% web-based is a key reason why it was chosen by Radboud University Medical Center. The lab needed a system that could be accessed by all authorized users, wherever they might be. The obvious question was, how safe is a cloud-based application from hackers? A leak of research data could undermine future patents. To rule out leaks, independent security consultancy Madison Ghurka carried out black-box testing. After a security level upgrade in October 2014, iVention's web application was proven safe. Now that iVention has been found free of security leaks, the next step is grey-box testing for certification. Radboud University Medical Center will repeat the test regularly to ensure security stays tight.
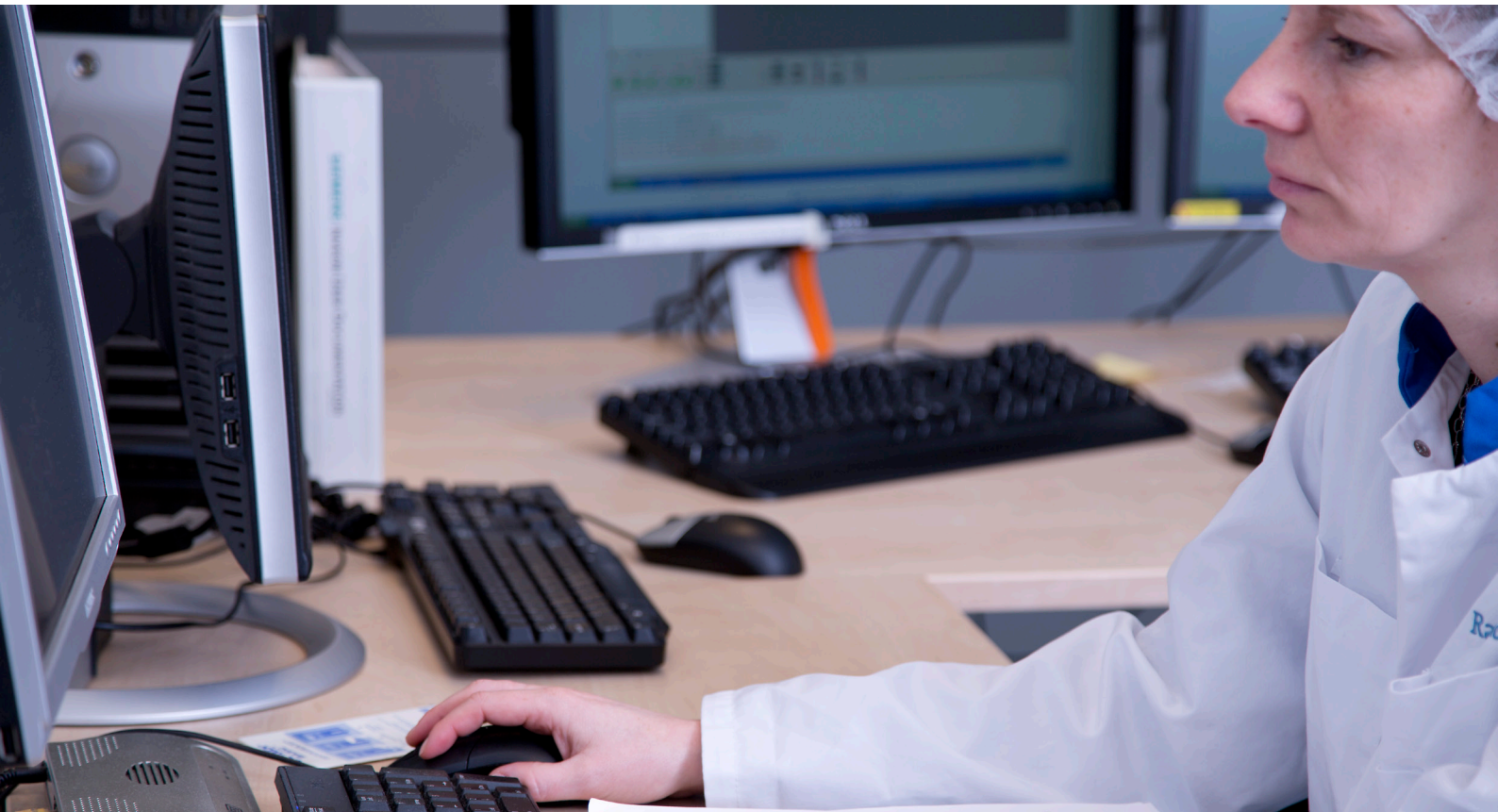
for the Netherlands Food and Product Safety Authority (VWA). Step by step, CDL is using more of the system's functionality, Hagenaar said. "We've been in conversion for just over a year now. Our main priority has been our researchers and their research. That's why I trust this is going to be successful. They are helping us figure out where automation can facilitate the process. So the configuration is really user-based."

Collaboration

iVention and CDL are now working on an option for researchers to import research charts and tables in iLES when they start a new project. "Because of the many different formats, it's hard to import these in an orderly way. But iVention has been great to work with on this challenge. We want this functionality to be as intuitive as possible. Researchers should still be able to collect their data in their own idiosyncratic ways. iVention's entity model offers much more flexibility than other systems we considered," Hagenaar said. "Automation forces you to think logically. We had to put all our work processes into flow charts. When you do this, you sometimes see you can actually skip a few steps. Initially, making test scripts was new and complicated for us. But we've learned. And ultimately, this makes iVention LES all the more comprehensive," he said, adding a final compliment for iVention: "I really appreciate the collaboration and iVention's willingness to find solutions and develop structures. We're both strong-willed, but we're learning a lot from each other."

iVention B.V.
Stadionplein 9 - 12
8025 CP Zwolle
+31 (0)38 7519313
info@ivention.nl
The Netherlands

About iVention

Since its establishment in 2009, iVention has shaken up the market for Laboratory Information Management Systems. Its flexible, 100% cloud-based applications have finally given laboratories a software system designed around the laboratory process. iVention's iLES is a cloud-based Laboratory Execution System. It enables laboratories to streamline their workflow and manage and computerize their routine work—even in highly regulated environments. iLES is a powerful management tool that can improve efficiency and quality. Applications are in use in the life sciences and pharmaceutical industry, in contract research organizations, the health care sector, the food and beverages industry, the environmental industry, in multinationals and at renowned institutions. Our staff understands laboratory workflows and knows laboratory software development inside and out. Our team of young IT talents and strategic consultants has rapidly grown to 20 strong. The iVention offices in The Netherlands are located in Utrecht and Zwolle. In January 2015, we started working with partners across Europe and opened a location in India. Are you done with old school thinking and curious about iVention's turn-key solutions? Just contact one of our consultants. We're happy to help.

www.ivention.nl